



Volume 17—No. 13

Season's Greetings

December, 1966

TIME TO RE-REGISTER

Pilot registration for 1967 will commence on January 1. All pilots residing in the State of Montana must hold a current registration with the Montana Aeronautics Commission. State registration is mandatory and all monies derived from registration provide the vital funds needed for Search and Rescue Operations in our state.

All new pilots and new residents, registering for the first time in Montana, will receive the Airport Directory immediately—all re-registering pilots will receive the latest revisions as soon as they are completed.

The 1967 registration form is identical to the 1966 form, however, the new form must be completed by each pilot in order to register, or re-register, and forwarded to the Aeronautics Commission with the \$1.00 fee.

All who have already submitted their new registration will be receiving their 1967 pilot cards during the early part of January.

We thank you who have registered early—and repeat to all other Montana pilots—**TIME TO RE-REGISTER.**

Registration forms are available from local General Aviation Operators and the Montana Aeronautics Commission, P. O. Box 1698, Helena, Montana 59601.

J. MORRISON FIRST MONTANA FLIGHT INSTRUCTOR TO RECEIVE FAA "GOLD SEAL"

Jeff Morrison, Morrison's Flying Service, Helena, is the first Flight Instructor in Montana to receive the Federal Aviation Agency's "Gold Seal."

The prime objective of the new seal is to raise the level of competency of all flight instructors by motivating them to improve their qualifications and will identify those instructors who meet the highest personal qualifications and are active in flight instruction.

To receive the seal an instructor must have: Commercial License with Flight Instructor Certificate; Instrument Rating; Ground Instructor Certificate with an Advanced Ground Instructor Rating and must have attended a flight instructor clinic. In addition the instructor must have trained at least 10 successful pilots and conducted at least 20 flight tests as an FAA designated pilot examiner or conducted 20 graduation flight tests as chief flight instructor.

Jeff Morrison associated with his mother Elizabeth "Bitty" Herrin in the operation of Morrison's, doubles as

an instructor and charter pilot. In addition to holding all the necessary certificates and ratings, Jeff was designated a Pilot Examiner by GADO 9 in Helena, October of 1964. Jeff attended a FAA Flight Instructor School and is a graduate of the first Montana Aeronautics Commission's



Jeff Morrison

Flight Instructor Refresher Course held in 1962.

Flight Instructors wishing to apply for a Gold Seal must submit their qualifications to a FAA General Aviation District Office—if all requirements are complied with, the GADO Inspector is authorized to issue the "Gold Seal".

Official Monthly Publication
of the

MONTANA AERONAUTICS COMMISSION

Box 1698

Helena, Montana 59601

Tim Babcock, Governor

Charles A. Lynch, Director

Carl W. (Bill) Bell, Chairman
Jack R. Hughes, Vice Chairman
Peter H. Black, Secretary
Clarence Anthony, Member
E. B. Cogswell, Member
Gordon Hickman, Member
Walter Hope, Member



CAB HOLDS HEARING ON WEST YELLOWSTONE AIR SERVICE INVESTIGATION

By Charles A. Smith
Commission Attorney

The Civil Aeronautics Board held hearings in Billings on December 6 & 7, on proposed increased air service to West Yellowstone, Montana.

Charles A. Lynch, Director of the Montana Aeronautics Commission, and Charles Smith, Commission Attorney, presented the case for the State of Montana supporting increased air service to West Yellowstone, Montana, and assisted the community of West Yellowstone in the presentation of their case at the hearing. Many of the Commission Members were also in attendance at the hearing.

This CAB proceeding was the result of applications filed with the CAB by both Frontier Airlines and Western Airlines which proposed new, or improved, air service for West Yellowstone, Montana. Frontier's application proposes to extend its presently existing route from Denver to Jackson, Wyoming, beyond the terminal point Jackson, Wyoming, to the terminal point Billings, Montana, via the intermediate point West Yellowstone, Montana. Western's application requests the addition of West Yellowstone as an intermediate point on its presently existing route between the terminal points Denver, Colorado, and Great Falls, Montana.

The hearing date was set last August by CAB Examiner Edward T. Stodola, at a pre-hearing conference which was held in Washington, D.C. The pre-hearing conference report of

Examiner Stodola crystalizes the matters at issue in this proceeding and outlines them as follows:

I. Do the public convenience and necessity require:

(a) The amendment, or modification, of Frontier's Certificate for Route 73 to add West Yellowstone, Montana to segment 4(B) as an intermediate point between Jackson, Wyoming, and Billings, Montana, for seasonal or year-around service, and if so, what terms, conditions and limitations should attach to such authorization;

(b) The amendment, or modification, of Western's Certificate for Route 28 to add West Yellowstone, Montana, as an intermediate point between Denver, Colorado, and Great Falls, Montana, for seasonal or year-around air service and, if so, what terms, conditions and limitations should attach to such authorization.

2. Are Frontier and Western fit, willing and able to provide any air transportation found to be required herein?

3. Should any new route authority be awarded if it will result in an increase in subsidy requirements?

In addition to Director Lynch, witnesses for the Montana Aeronautics Commission included Dr. Lloyd C. Rixe, President of T. A. P., Inc., an economic consulting firm located in Bozeman, Montana, and Ronald R. Beaumont, General Traffic Manager of the Yellowstone Park Company. Witnesses for the community of West Yellowstone were Howard T. Kelsey, President of the 9-Quarter Circle Ranch, and President of the Stage Coach Inn, located in West Yellowstone, Montana; Joe G. Eagle, Manager of the Eagle Gas Station and General Store in West Yellowstone, Montana, and Dean L. Nelson, President of the First Security Bank of West Yellowstone, Montana.

The next procedural step in this proceeding is the submission of briefs to the Examiner by the parties involved. The briefs are due on December 23, 1966. Following submission of briefs to the Examiner, the Examiner will render his decision. If the Civil Aeronautics Board decides to review the Examiner's decision in this case, then parties will be required to file briefs to the board and argue the case orally before the Board in Washington, D.C. After oral argument, the CAB issues its own decision on the merits.



CALENDAR

January 10-11, Havre—Montana Aviation Trades Association Convention.

January 12, Helena—Montana Aeronautics Commission Monthly Meeting.

January 15-18, 1967—Palm Springs, Calif.—15th Annual Meeting of the Helicopter Association of America and Helicopter Showcase. For reservations write: Holiday Inn-Rivera, 1600 North Indian Ave., Palm Springs, Calif.

May 6-7, Havre—Montana Pilots Association Convention.

May 6-7, Bakersfield, Calif.—International Championship Stock Plane Air Races will be held at Shafer Airport (Minter Field), sponsored by the greater Bakersfield Chamber of Commerce Aviation Committee.

MONTANA AND NORTH DAKOTA INCLUDED IN FRONTIER'S TRAFFIC INCREASE REPORT

Frontier Airlines' November total revenue passenger miles increased 40% with 25,254,000 revenue passenger miles compared with 18,040,000 revenue passenger miles flown during the same month last year.

The Frontier-served cities in Montana and North Dakota showed sizeable increases in November over the same month in 1965.

Montana's nine Frontier-served cities boarded a total of 3,838 passengers for a 48% increase.

Billings	2,193 passengers	54% gain
Glasgow	163 passengers	7% gain
Glendive	86 passengers	9% gain
Gt. Falls	843 passengers	67% gain
Havre	95 passengers	61% gain

Two Montana Communities of Lewistown and Sidney showed slight decreases during the month.

Miles City showed the biggest percentage of growth in Montana with 167 passengers for a 92% increase. Wolf Point showed a gain of 10%, boarding 55 passengers during the month.

In North Dakota, the three Frontier-served cities generated a total of 2,127 passengers for an 42% increase. Bismarck 949 passengers 47% gain
Minot 784 passengers 47% gain
Williston 394 passengers 22% gain

HAVRE HIGH SCHOOL HOLDS FLYING CLASSROOM

By C. R. "Ron" Adams

Supervisor of Aviation Education

On November 23, thirty-two Havre High School students from world geography classes, instructed by Robert Brigham, participated in a Flying Classroom. This project was under taken to supplement their classroom work in geography, geology and conservation.

Participating in the project besides Mr. Brigham were: Hensley Flying Service which furnished two aircraft piloted by Walt Hensley, A. J. Ledbetter and Sharel Bitz (Walt's daughter); Van Haderlie of the Soil Conservation Service, who handled the in-flight commentary; Ron Adams of the Department of Public Instruction and Montana Aeronautics Commission who coordinated the project and piloted the Commission aircraft; Norvel Carlson, Curriculum Director, Havre High School.

The three aircraft flew four flights over a pre-selected route. Flights ranged from one to one and half hours each. The route was carefully chosen to ensure that the students would be able to observe examples of what they had been studying in their classrooms sessions.

The two morning flights were hampered by weather and were unable to go as far north and east as was planned, however, the afternoon flights did fly the entire route. Mr. Brigham said of the Flying Classroom, "I found it an extremely worthwhile project. All of the students in their personal evaluations were highly pleased with the project," and the students expressed their pleasure at such a learning experience.

During the conduct of the flight, movies and slides were taken of the entire trip to be used as visual aids in future classes and to prepare these future classes for similar projects. Mr. Brigham felt that the use of aerial photos, slides and movies were a valuable aid in preparing his students for their flights.

The Flying Classroom is a project sponsored jointly by the State Department of Public Instruction and the Montana Aeronautics Commission. It is the aim of these two state offices to encourage the use of the airplane as an educational tool and it is their desire that schools continue their flying classroom projects.

AIR GUARD PRESENTS JET TO SCHOOL



Students from Helena's Aeronautics School eagerly take a "close-up" look at the F-89 Scorpion Jet, shortly after its arrival at the Helena Airport.

Recently the Montana Air National Guard presented the Department of Aeronautics and Related Trades of the Helena Senior High School with an F-89 Scorpion Jet aircraft.

Officials of the 120th Fighter-Group of the Montana Air National Guard stationed at Great Falls International Airport, presented the jet's papers to William Korizek, principal of the Aeronautics School and William Ernst

of the Department of Public Instruction.

The plane, which will not be flown again, will be used by the school for ground training in the maintenance and overhaul of jet engines, hydraulics, controls and airframe.

The Scorpions were recently phased out by the F-102s with the majority of the Air Guards twenty-five Scorpions being flown to the storage facility in Tucson, Arizona.

STATISTICS

Montana Aircraft Accidents)

	61/37	
	65/22	
	62/22	
	75/16	
	Accident	Fatalities
	Total	
1964 Total	61	37
1965 Total	65	22
1965 as of this date	62	22
1966 as of this date	75	16

FOR SALE: Cessna 172—1956—1500 TT—800 MOH. Primary Panel—Narco Superhomer—Very Clean. Contact: Jim Hickman, Raven Ranger Station, Star Route, Libby, Montana. Business Phone: 293-6112, or Resident Phone: 293-4006.

FOR SALE: Cessna 120—615 since major—VHT—3 Radios—2800 TT—Full elec.—Full panel—Nav. & Landing lights. Price \$1895.00 cash. Contact: Warren Thacker, 744 Terry Ave. Billings. Phone: 252-4215 after 5:00 P.M.

FOR SALE: 1966 Cessna 180. Cost New: \$18,176. Wanting to reduce inventory. Will sacrifice for \$15,000. Contact: Don Cazier, Townsend, Phone 226-3313.

FEDERAL AVIATION AGENCY ITINERARY LISTING



Airport	Jan.	Feb.	Mar.
Culbertson		8	
Glasgow	11		8
Glendive			22
Great Falls	5	9	9
Lewistown	25		
Miles City		23	
Missoula	26	16	23
Sidney			23

Note: Provisions have been made to give Private, Commercial/airplane and Flight Instructor/airplane and Instrument written examinations ON AN APPOINTMENT BASIS ONLY at the following FAA Flight Service Stations.

Bozeman	Lewistown
Butte	Livingston
Cut Bank	Miles City
Dillon	Missoula

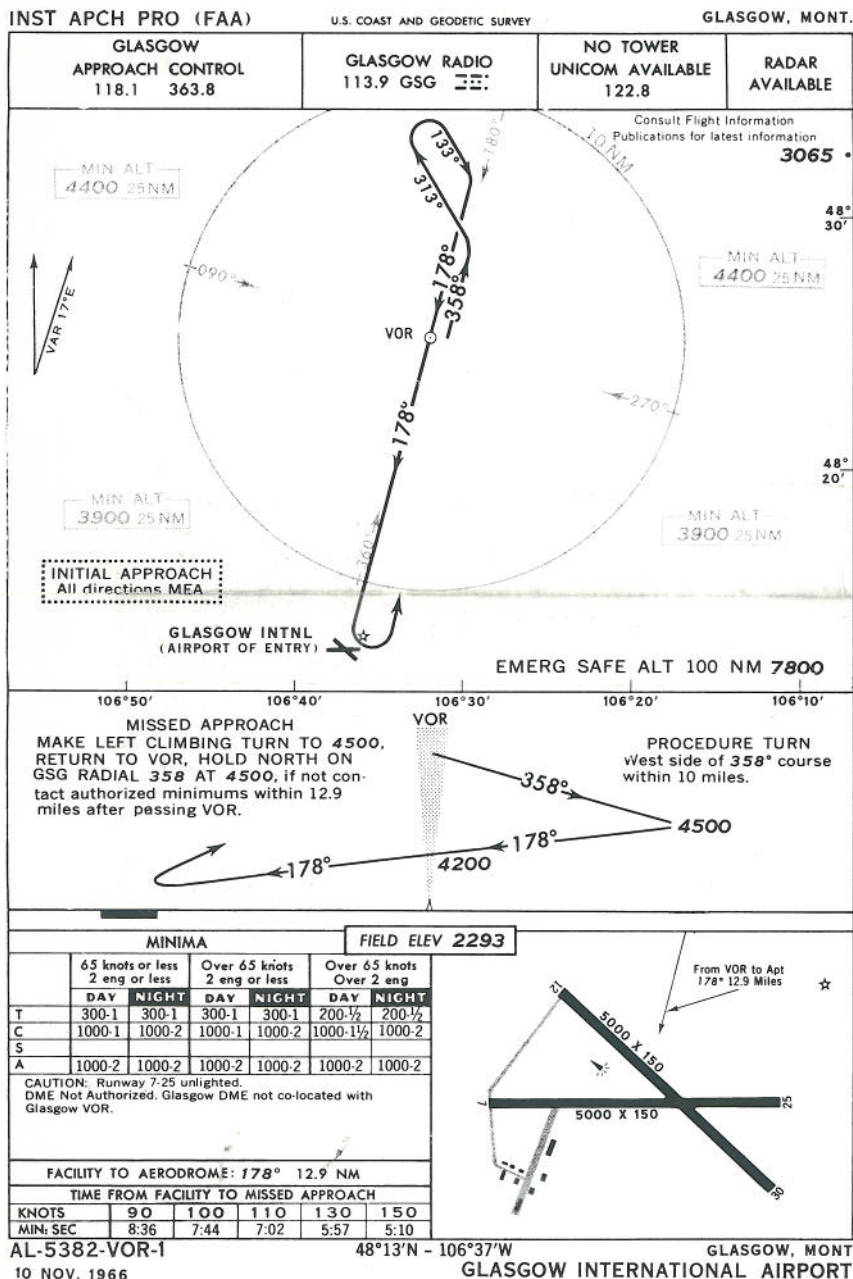
FOR SALE: 1959 Bellanca 230—1050 Hr. TT—100 Hr. STOH—Fresh annual—Fabric top green—Rotating beacon—DG—Horizon—Alcor—Carb. Temp—Outside air—MK I om-nigator—New tires, etc. Price \$6,995.00 FIRM. Contact: G. K. Gregoire, Box 1585, Great Falls, Mont.

FOR SALE: 1959 Tri-Pacer 150. 350 hrs. STOH. Primary panel—VHT/3 Super Homer—Very Clean—Always hangared—must sell. Price: \$3,600. Contact: N. W. Coleman, 1124 Main, Lewistown. Phone: Evenings—538-3042.

INSTRUMENT APPROACH PLATE FOR GLASGOW AVAILABLE

Mr. O. E. Markle, chairman of the Valley County Development Council's steering committee, has announced the publication of an instrument approach plate for the Glasgow International Airport to aid pilots navigating under instrument flight rules.

The plate, shows the instrument approach to the airport when weather impairs visibility and was published through the efforts of the Council's aviation committee, Mr. Don Goddard chairman.



AIRPORT NOTES



By James H. Monger

Assistant Director

PILOT REGISTRATION DESKS

Two years ago the State's Montana Pilots Association suggested that the Montana Aeronautics Commission place pilot registration desks on all un-attended airports. Our office worked with the State Association Committee and developed a fine unit. About 50 pilot registration desks have been placed throughout Montana by our summer work crew.

The desks are working out fine and we are finally getting an indication of small airport usage where before it was virtually impossible to develop statistics.

Now we need your help to encourage all pilots to register at the desks when flying in and out of a small airport. We have had good luck from the professional pilots and out-of-staters so please help out by signing in each day you fly, even if you are based at that airport.

The registration sheets when filled become permanent records for that airport. These forms will give the city, county or state and federal officials an indication of airport usage even though it won't be totally accurate. Unfortunately, not enough pilots get into the habit of signing the registers. We are attempting to determine the percentage that does sign in. The filled sheets can help justify an airport improvement project at some later date, and can you think of any airport which doesn't need improving?

FOR SALE: One 520 Aero Commander, one 55 Apache and one B Bonanza. All fully equipped—Priced right. Check for details by contacting: Byron Bayers, Twin Bridges, Montana.

FOR SALE: Cessna 175, zero time on rebuilt engine. Take over present contract. Call State Credit Corporation. Phone: 543-8373—Missoula.

FOR SALE: Cessna 120—635 SMOH—Fresh Annual—Electric system. VHF Radio. Price \$2500. Contact: J. M. Milligan, Rte. 1, Box 9, Helena. Phone: 442-8148.

Instrument Approach Plate for Glasgow International Airport.

TWENTY ONE COMPLETE '67 MECHANICS REFRESHER

Twenty-one aviation mechanics from various cities around the state completed the fourth Montana Aviation Mechanics Refresher Seminar. The 8-day seminar, sponsored by the Montana Aeronautics Commission, was held in the facilities of the Helena Senior High School's Department of Aeronautics and Related Trades from November 28 through December 5th. Instruction was presented by representatives of two leading aircraft companies, component manufacturers, electronic services, the Federal Aviation Agency and for the first time on a Montana seminar there was a presentation on oxygen equipment, its installation and safety procedures.

Maintenance of the very latest aircraft and equipment with accents on pressurization, turbo supercharging systems and prop turbine jet engines highlighted the 1966 Seminar.

Charles A. Lynch, Director of the Aeronautics Commission, gave an hour long presentation during the 1966 Seminar on "Sales Technique of Good Service Invoicing." Mr. Lynch suggested methods of bringing professionalism and business like account management into the Aviation Mechanics shop.

SEMINAR GRADUATES



Front Row (left to right)

William R. Chambers—School of Aeronautics, Helena
Paul R. Thompson—Self Employed, Polson
Dorman F. Emmett—Big Sky Maintenance, Billings
Jack Mayer—Hamilton Aviation, Hamilton
Roy S. Daniels—Johnson Flying Service, Missoula
Frank Wryn—Johnson Flying Service, Missoula
Robert C. Settle—Glendive Flying, Glendive
Jim Johnson—Self Employed, Lewistown
John Hebbelman, Jr.—Hebbelman, Chinook

Back Row (left to right)

Ed W. McCurdy—School of Aeronautics, Helena
Dennis P. Elgen—Modern Aire, Culbertson
Melvin D. Wegner—Holman Aviation, Great Falls
Jack Giacoletto—Butte Aero, Butte
Joseph Gayan—Stockhill Aviation, Kalispell
Guy T. Shoemaker—Montana Airmotive, Billings
Dean Hanrahan—Morrison Flying, Helena
Delbert Jenkins—Gillis Aviation, Billings
Ron Patzer—Self Employed, Helena

Third Row

Course Manager Jack Wilson, Safety and Education Officer, M.A.C.

(Trainees completing seminar but not present for pictures were: Doug Anderson—Self Employed, Townsend; Patrick Doyle—Toulouse Aircraft Service, Havre and Jim Gibson—Big Sky Maintenance, Billings.)

1966 SEMINAR PARTICIPANTS

Montana Aeronautics Commission—Sponsor

School of Aeronautics—Helena High School

Federal Aviation Agency

Beech Aircraft Company

Piper Aircraft Corp.

Avco-Lycoming

Bendix Corporation

Champion Spark Plug Co.

Continental Motors Corp.

Electronics Consultants Service

Zep Aero

AMRS NO. 4 SCHEDULE

Nov. 27—Sunday	Registration—MAC Offices
Nov. 28—Monday	Montana Aeronautics Commission Welcome Federal Aviation Agency
Nov. 29—Tuesday	Electronics Consultants—Elcon Bendix Corporation
Nov. 30—Wednesday	Bendix Corporation Lycoming Engines Continental Engines
Dec. 1—Thursday	Piper Aircraft Corporation
Dec. 2—Friday	Piper Aircraft Corporation Zep Aero, Inc.
Dec. 3—Saturday	Beech Aircraft Corporation
Dec. 4—Sunday	Montana Aeronautics Commission Beech Aircraft Corporation
Dec. 5—Monday	Champion Spark Plug Co. MAC Oral Critique Social Hour—Placer Hotel Awards Dinner



FEDERAL AVIATION AGENCY: (Instructors. lt. to rt.) Don Wright, GADO 1, Billings; C. R. Taylor, GADO 9, Helena and Carl Hutchinson from the Area Office, Minneapolis, Minnesota. (Mr. John Gera from the Area Office gave a presentation on Monday morning but had to depart immediately following and was not present for the picture.)



BENDIX CORP.: Ken W. Johnson, Instructor.



BEECH AIRCRAFT CORP.: Scott Hutchison and Bruce Ad-dington, Instructors.



PIPER AIRCRAFT CORP.: Larry Becker, Instructor.



ZEP AERO: Wilbur Zep, Instructor.



AVCO-LYCOMING: Fred Troxell, Instructor.



CONTINENTAL MOTORS CORP.: Ford Gaultney, Instructor.

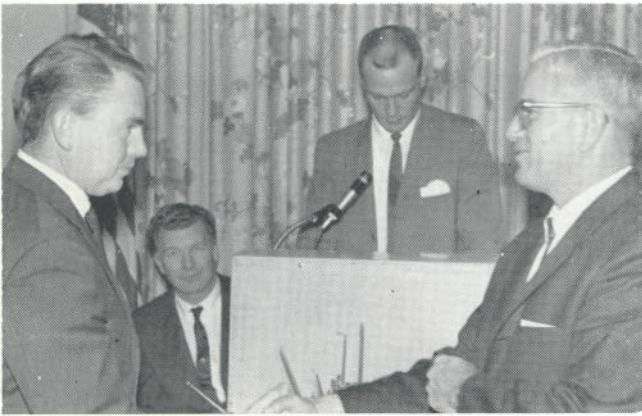


ELECTRONICS CONSULTANTS SERVICE: Alan Eurich, Instructor.



CHAMPION SPARK PLUG CO.: Anthony "Tony" Orgain, Instructor.

AWARDS/APPRECIATION BANQUET



Course Manager Wilson presenting trainee Ed McCurdy, instructor at the Aeronautics School in Helena, with his Certificate of Merit for successful completion of the seminar. Shown seated to the left is Mayor Dave Lewis, of Helena, and standing, Ron Adams, MAC's Aviation Education Supervisor.



Course Manager Wilson presents the appreciation certificate to the Helena High School which is accepted by Mr. James Weir, Coordinator of Secondary Schools, District No. 1.



The awards/appreciation banquet was held on Monday evening, January 5th at the Placer Hotel in Helena. Course Manager, Jack Wilson, Safety and Education Officer for the Aeronautics Commission, was Master of Ceremonies and Helena's Mayor, Dave Lewis was the speaker. Mr. Wilson was assisted in the Certificate Presentations by Ron Adams, Aviation Education Supervisor for the Commission.

Special banquet guests included Mr. Wayne Brown of Combs Aircraft Company in Denver, Colorado, his assistant, Mr. Don Sellers and company representative Win Eklund. Combs has coordinated and greatly assisted the Commission on the Mechanics Refresher Seminars since their origination by the Commission in 1963.

The Commission and Seminar staff, Jack Wilson, Course Manager; Joyce McCutcheon, Course Secretary and Jerry Burrows, Course Technician and Photographer, were gifted with letters signed by each of the trainees stating their appreciation in having the opportunity to attend the seminar.

The Aeronautics Commission takes pleasure in acknowledging that a vital factor contributing to the success of the four Montana Seminars has been the complete cooperation of the Helena School District, the FAA and its Montana personnel; the participating companies and foremost, the enthusiastic effort of the Montana aviation mechanics to up-grade and up-date themselves and their industry.

AVIATION WEATHER BROADCASTS

Weather Bureau reports, forecasts, and advisories are broadcast over radio communication facilities of the Federal Aviation Agency (FAA). Although the weather in these releases is prepared and selected with the pilot in mind, the broadcasts are also popular with amateur weathermen and others of the general public who are engaged in the planning of outdoor activities.

Aviation weather broadcasts are perhaps best described under the categories of "scheduled broadcasts" and "continuous broadcasts." They also differ in that some are transmitted over low/medium frequencies (L/MF) ranging from 200 to 400 kilocycles (kc.) and others are broadcast on the very high frequencies (VHF) of 108 to 118 megacycles (mc.). (Both ranges cover frequencies the average home radio will not receive.) **Scheduled** aviation broadcasts are made twice each hour. At 15 minutes past the hour, current weather reports for 8 to 12 locations within 150 miles of the broadcast outlet are transmitted. At 45 minutes past the hour, a similar number of reports are broadcast for the more important cities and airports within a 400 mile radius. As appropriate, scheduled broadcasts include advance warnings of potentially hazardous weather, such as squall lines, thunderstorms, fog, icing, and turbulence. Weather radar reports are given, if available. Most scheduled aviation weather broadcasts are transmitted on the VHF Channels but a few are found on the L/MF channels.

Continuous transcribed weather broadcasts include for a radius of 250 miles of the broadcast outlet: a description of the synoptic situation, a forecast of aviation weather including upper level winds, warnings (if in effect), pilot and radar reports (if available), and current weather reports (8 to 15). These items are repeated making the service continuous. Material is updated as new reports and revised forecasts are issued. Continuous broadcasts are contained within the 200 to 400 kilocycle range.

At ground level, **VHF broadcasts** are picked up only short distances from the transmitting sight. Only one VHF aviation broadcast is, therefore likely to be received in any given area. Whether one is available can be determined by scanning the 108

to 118 megacycle band at 15 or 45 minutes past the hour.

During the evening or early morning hours and with a sensitive receiver and good antenna exposure, the **L/MF broadcasts** can be received up to 100 or more miles. With average equipment, the maximum range is reduced to about 50-75 miles. Frequencies and outlet locations of L/MF broadcasts providing scheduled and continuous aviation weather information are listed below.

CONTINUOUS AND SCHEDULED MONTANA AVIATION WEATHER BROADCASTS ON FAA L/MF

(200-400 kilocycle)

RADIO FACILITIES

(S) Scheduled	(C) Continuous
Location	kcs.
Billings	400 (C)
Bozeman	329 (C)
Cut Bank	263 (S)
Dillon	379 (S)
Great Falls	371 (C)
Lewistown	353 (S)
Livingston	224 (S)
Miles City	320 (C)
Missoula	308 (C)

U.S. DEPT. OF COMMERCE ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION WEATHER BUREAU

CONGRATULATIONS



CERTIFICATES ISSUED RECENTLY TO MONTANA FLYERS

STUDENTS

Grosswiler, James A.—Kalispell
Matonich, Edward J.—Billings
Ferguson, Michael D.—Billings
Shepard, Morton W.—Wilton, Maine
Salsbury, Loran D.—Billings
Norden, James L.—Sidney
Bull, Gary E.—Ashland
Deignan, Michael P.—Glasgow
Abler, Ronan L.—Ashland
Smith, Howard L.—Poplar
Stockton, Daniel E.—Billings
Fruit, Vernon C.—Hazen, N.D.
Matovich, Harold P.—Mosby
Saier, Alarich F.—Columbus
Miller, Allen G.—Miles City
Elford, Frederick A.—Lavina
Foeste, Jane E.—Billings

DeTienne, Harold C.—Bainville
Rittierodt, Penny L.—Melstone
Higgins, Floyd J.—Miles City
Rush, Devona C.—Billings
Heidel, Ben B.—Broadus
Nystul, Randolph A.—Columbus
Pemberton, Alfred O.—Broadus
Bergeson, Robert W.—Billings
Westall, Joan S.—Dillon
Schaffer, William F.—Deer Lodge
Dube, Paul Fernand—Shelby
Nichols, James H.—Baker
Anderson, Edwin—Big Fork
Goodrich, James C.—Missoula
Wehr, James N.—Kalispell
Clemans, Michael L.—Polson
Peterson, David R.—Missoula
Harsha, Robert W.—Missoula
Lawson, Carl D.—Great Falls
Betts, Richard S.—Missoula
Cline, Leon L.—Havre
Gilbert, Larry J.—Bozeman
Hahn, Lester L.—Great Falls
Hochhalter, James A.—Casper, Wyo.
Jones, Norman R.—Dillon
McKie, James K.—Bozeman
Moore, James Delmer—Belgrade
Van Sice, Robert B., Jr.—Idaho
Falls, Idaho
Taylor, William T.—Havre
Ross, Georgiana M.—Kalispell
Alexander, Edgar E.—Bozeman
Frank, Ronald E.—Belgrade
Harmon, William G.—Great Falls
Bowers, Robert C.—Deer Lodge
Hall, Larry E.—Kalispell
Howard, Sidney R.—Missoula
Normandeau, Dwayne E.—Polson
Toavs, Dwight V.—Wolf Point
Abt, William C., Jr.—Great Falls
Doheny, David E.—Conrad
Johnson, Charles S.—Lake Stevens,
Wash.

Nelson, James E.—Great Falls
Rismon, Kearn M.—Havre
Wiley, Melvin R.—Great Falls
Mason, David J.—Bozeman
Semrad, Robert J.—Harlan, Iowa
Sundsted, Arlyn C.—Antelope
Tone, Daniel J.—Bozeman
Beck, Ralph A.—Missoula
Frogge, Basil C.—Missoula
Gcllehon, Terry G.—Missoula
Redenbo, Creighton A.—Ronan
Schroeder, Henry W.—Evansville,
Ind.

PRIVATES

Obert, John B.—Roberts
Saubak, John C.—Peerless
Lukas, Leonard P.—Glasgow
Gilmore, Raymond W.—Billings
Marshall, Charles E.—Lewistown
Malurek, Thomas P.—Harlowton
Jones, Lawrence D.—Harlowton
Stoltz, Frank F.—Miles City

Gierke, William, Jr.—Miles City
 Harris, Dave I.—Alzada
 Brees, Gerald J.—Bowman, N.D.
 Athearn, James L.—West Glacier
 Hansen, Patricia D.—Great Falls
 Brooks, Edward E.—Cut Bank
 Ehlert, Darrell R.—Helena
 Gomke, Arnold A.—Missoula
 Lambi, William P.—Kalispell
 Ostrom, Norman A.—Kalispell
 Samuels, Glen A.—Great Falls
 Wermager, Brian L.—Fergus Falls,
 Minn.
 Duff, Roy M.—Whitefish

ADVANCED AND SPECIALIZED COMMERCIAL

Culver, Robert S.—Billings
 Scheel, John F.—Billings
 Biggerstaff, Michael R.—Denton
 Fairless, Mark W.—Trenton, Tenn.
 Slater, Leslie B.—Spokane, Wash.
 Palmquist, John A.—Great Falls

INSTRUMENT

Magill, Pearl J.—Glasgow
 Combs, Harry B., III—Billings
 Christoffersen, Alfred P.—Great
 Falls
 Towle, George W.—Great Falls
 Youngblood, Arvel G.—El Paso,
 Texas

MULTI ENGINE

Bell, Ronald L.—New South Wales,
 Australia
 Sulenes, Norman L.—Billings
 Plaggemeyer, Thomas L.—Missoula

ATR

Robinson, Allison F.—Rivers Camp,
 Manitoba

FLIGHT INSTRUCTOR

Craig, Robert R.—Billings

FLIGHT INSTRUCTOR INSTRUMENT

Oglesby, Steve R.—Peerless

GROUND INSTRUCTOR AND GROUND INSTRUCTOR INSTRUMENT

Morrison, Larry W.—Cheyenne, Wyo.
 Culver, Robert W.—Billings

ROTACRAFT/HELICOPTER COMMERCIAL

Baze, Charles B.—Missoula

SENIOR PARACHUTE RIGGER (Seat Type Added)

Jensen, Nels H.—Missoula
 (Back and Chest Added)
 Sanders, Frank C.—Missoula

TYPE RATINGS

Douglas DC-2

Stohr, Penn R.—Missoula

Convair 440 & DC-3

Youngblood, Arvel G.—El Paso,
 Tex.

POWER PLANT MECHANIC

Ford, James A.—Missoula
 Stradley, Roger I.—Belgrade

FAA INSPECTOR'S CORNER



By Lee Mills, Sup'r. Inspector,

The following is a reprint from the May, 1966 issue of FAA Aviation News—submitted by Inspector Mills, GADO 9.

DON'T LET YOUR ENGINE DIE OF THIRST

It seemed routine. The doctor-pilot, flying over mountainous terrain, decided to switch fuel tanks. Within minutes, the engine quit and the doctor was fortunate to survive crash landing. Investigation showed one fuel tank empty and one full. The pilot had manipulated the electrical switch controlling the fuel gauge system (one gauge for both tanks), but he failed to operate the fuel tank selection valve.

The incident illustrates the cardinal rule of good fuel management: Know your plane's fuel system inside, outside, backward and forward. And think about what you're doing when you do it.

In many accidents, investigators find a full tank on one side and an empty one on the other, **with the fuel selector on the empty tank**. In the confusion of experiencing loss of power, pilot often fails to pinpoint the trouble.

Short-time pilots are not the only ones involved in such incidents. In one recent case, the pilot involved had more than 17,000 hours. Yet, the old, sad refrain of "Unfamiliarity" runs through accident after accident. A 1963 crash involving a single-engine plane near Holbrook, Ariz., killed three persons. Prior to the crash, radio calls to Prescott were made by the pilot stating the engine was "cutting out." A full main fuel tank was found in the wreckage. Investigation showed that the fuel system had been modified and the fuel management system differed from the standard system de-

tailed in the operator's manual. The pilot had rented the airplane and, while he had previous experience in the same model plane, he had little in the aircraft involved in the accident.

Diversity of cockpit arrangements calls for close attention. On some planes, the multiple fuel selector valve is in one place and the selective, manually-operated electrical fuel tank **quantity** indicator is in another, with no explanation to the pilot regarding use.

Some models of the same aircraft have at least three different types of fuel selector valves. Two of the types look alike, but there the similarity ends. One type requires the pilot to push the handle down to engage the tank selector "detents"; the other type engages by turning the handle without pushing down. In one case, a plane in this "family" had to be crash-landed short of a California airport after all four occupants tried their luck at shifting tanks. All had flown models which required a simple turn to the full tank, but none knew the aircraft in question was equipped with a type requiring considerable pushing of the handle to get the needed fuel.

Various types of selector handles are used in light planes. Some are mounted at the factory to **point at** the selector position desired by using the handle as a pointer. Others are mounted in such a manner as to **point away from** the position desired.

Serious problems can and do arise at the time fuel tanks are switched. A pilot descending from cruising altitude to locate the airport ran out of fuel on one wing tank. He had to make an emergency landing at night on a street in a residential area, although the other tank was full. He should have switched fuel tanks prior to his descent from his enroute cruising altitude.

Not long ago, the selector valve handle broke off in a pilot's hand when he was switching fuel tanks on a crosscountry flight in a single-engine, high-performance aircraft. One tank was just about dry and the pilot was switching to the half-full tank. He did not know whether the selector handle broke off while on the empty tank, or had made it to the other tank. This caused him a good bit of anxiety as he was over rugged terrain where a safe forced landing would have been impossible. Fortunately, the selector was on the full tank and he made it

to his intended fuel stop. In the future, he said, he would do his tank switching over an airport, whenever possible. (And try the tank selector on all tanks prior to take off to be sure it's working.)

In a similar incident, a flight instructor shut the fuel off so his student might experience an inflight emergency. When the engine quit, the student quickly spotted the difficulty and switched the selector on again. The engine didn't catch right away and they lost altitude rapidly. The instructor, not noticing the student's action, became apprehensive about the altitude loss and switched the fuel selector again, in error, to the off position. The plane went in for a crash landing.

In another incident fuzzy instructions proved expensive. One cold, snowy day in Colorado a low-wing single-engine plane taxied to a fuel island. The pilot told the service boy to "top all the tanks." The youngster

filled the wing-tanks and then, with his parka over his head and his back to the wind, filled the auxiliary fuselage tank. About 50 gallons of fuel were pumped into the fuselage belly before the service boy realized he auxiliary tank had been removed for repairs!

Certain light aircraft with gravity-flow fuel systems are placarded against taking off or landing on one-tank position. Takeoffs and landings must be made with the fuel selector on the two-tank position. This placard is required because the left-right fuel tank position does not meet the fuel flow requirements for full power climb. In most cases, these planes can successfully perform on the one-tank position. However, under certain conditions, fuel starvation takes place at takeoff.

One engine manufacturer of a popular light aircraft fuel injection engine has a high and low fuel boost position. The aircraft owner's handbook clearly

states use of "low boost" for takeoff is specifically prohibited. But several accidents have resulted when pilots disregarded this warning and used high boost for takeoff. The high boost is for a hot weather "vapor lock" condition.

Pilots should be alert to the problem of water in the fuel. At strips where planes are refueled by hand pump from barrels, condensation within the barrels can add water to the fuel. The only solution is careful fuel monitoring and use of chamois as a water filter for all refueling operations.

(Aviation News Magazine is the official monthly magazine of the FAA and contains safety articles as this in every issue. It may be ordered on a yearly subscription basis (\$1.50 Domestic) from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.)

WIND FACTOR CHART

COOLING POWER of WIND on EXPOSED FLESH EXPRESSED as EQUIVALENT TEMPERATURE
(Under Calm Conditions)

		Actual Thermometer Reading (* F)											
WIND SPEED		50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
KNOTS	MPH	EQUIVALENT TEMPERATURE (* F)											
Calm		50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
4	5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
9	10	40	28	16	4	-9	-21	-33	-46	-58	-70	-83	-95
13	15	36	22	9	-5	-18	-36	-45	-58	-72	-85	-99	-112
17	20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-124
22	25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
26	30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
30	35	27	11	-4	-20	-35	-49	-67	-82	-98	-113	-129	-145
35	40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
Wind Speeds Greater Than 40 mph have little additional effect		LITTLE DANGER (For properly clothed person)				INCREASING DANGER				GREAT DANGER			

MATA CONVENTION HAVRE IN JANUARY

Walter Hensley, Program Chairman of the MATA Convention has announced the following:

1967 MONTANA AVIATION TRADES ASSOCIATION'S CONVENTION WILL BE HELD IN HAVRE ON JANUARY 10th and 11th.

Program

Tuesday, January 10: Aerial Appli-
cators and Specialized Services.

Wednesday, January 11: Sales and
Service Operators—Regular Business
Meeting and Election of Officers.

The convention promises two days
of important and worthwhile sessions
in addition to a "Good Time" for all.

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Great Falls	6,570	682
Missoula	4,181	312
Helena	2,612	165

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You don't have to explain some-
thing that you have not said.

* * *

Ambition is like influenza—if you
expose yourself to enough of it, you'll
catch some.

* * *

Persons who criticize self-made men
usually haven't been able to make
much of themselves.

MEMBER

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